

CONTENTS

Volume 26 Number 1

D. M. D. Badarneh and I. O. Ghawi 1 Effectiveness of inoculation on biological nitrogen fixation and water consumption by lentil under rainfed conditions

Anders Priemé 7 Production and emission of methane in a brackish and a freshwater wetland

Georg Guggenberger and Wolfgang Zech 19 Composition and dynamics of dissolved carbohydrates and lignin-degradation products in two coniferous forests, N.E. Bavaria, Germany

B. E. Ruz-Jerez, R. E. White and P. Roger Ball 29 Long-term measurement of denitrification in three contrasting pastures grazed by sheep

C. Colinas, E. Ingham and R. Molina 41 Population responses of target and non-target forest soil organisms to selected biocides

M. Constantinides and J. H. Fownes 49 Nitrogen mineralization from leaves and litter of tropical plants: relationship to nitrogen, lignin and soluble polyphenol concentrations

B. E. Baca, L. Soto-Urzua, Y. G. Xochihua-Corona and A. Cuervo-Garcia 57 Characterization of two aromatic amino acid aminotransferases and production of indoleacetic acid in *Azospirillum* strains

Lise K. Gander, Charles W. Hendricks and Jack D. Doyle 65 Interferences, limitations and an improvement in the extraction and assessment of cellulase activity in soil

L. M. Dandurand and J. A. Menge 75 Influence of *Fusarium solani* on chemotaxis of zoospores of *Phytophthora parasitica* and *Phytophthora citrophthora* and on distribution of ^{14}C in citrus tissues and root exudate

R. T. Lartey, E. A. Curl and C. M. Peterson 81 Interactions of mycophagous collembola and biological control fungi in the suppression of *Rhizoctonia solani*

F. J. M. Verhagen, P. E. J. Hageman, J. W. Woldendorp and H. J. Laanbroek 89 Competition for ammonium between nitrifying bacteria and plant roots in soil in pots; effects of grazing by flagellates and fertilization

R. Ohtonen, P. Lähdesmäki and A. M. Markkola 97 Cellulase activity in forest humus along an industrial pollution gradient in Oulu, Northern Finland

F. Huysman, W. Verstraete and P. C. Brookes 103 Effect of manuring practices and increased copper concentrations on soil microbial populations

Jacqueline Henrot and G. Philip Robertson 111 Vegetation removal in two soils of the humid tropics: effect on microbial biomass

J. Wu, A. G. O'Donnell, Z. L. He and J. K. Syers 117 Fumigation-extraction method for the measurement of soil microbial biomass-S

A. Ghani, S. S. S. Rajan and A. Lee 127 Enhancement of phosphate rock solubility through biological processes

K. G. Wilkinson, K. Sivasithamparam, K. W. Dixon, P. C. Fahy and J. K. Bradley 137 Identification and characterisation of bacteria associated with Western Australian orchids

Ernesto Bosatta and Göran I. Ågren 143 Theoretical analysis of microbial biomass dynamics in soils

Short Communication

C. Vannier and B. Guillet

149 Sulphur forms in the organic fractions of an upland forest soil (Mont Lozère, France)

Forthcoming Papers

I

Volume 26 Number 2

E. Veldkamp and A. M. Weitz

153 Uncertainty analysis of $\delta^{13}\text{C}$ method in soil organic matter studies

J. Swinnen, J. A. Van Veen and R. Merckx

161 ^{14}C pulse-labelling of field-grown spring wheat: an evaluation of its use in rhizosphere carbon budget estimations

J. Swinnen, J. A. Van Veen and R. Merckx

171 Rhizosphere carbon fluxes in field-grown spring wheat: model calculations based on ^{14}C partitioning after pulse-labelling

N. Bernier and J. F. Ponge

183 Humus form dynamics during the sylvogenetic cycle in a mountain spruce forest

Christine D. Maxwell and Cheryl McKenna Neuman

221 Photoautotrophs and the microaggregation of sand in a freshwater beach-dune complex: implications for sediment transport by wind

B. Nicolardot, J. A. E. Molina and M. R. Allard

235 C and N fluxes between pools of soil organic matter: model calibration with long-term incubation data

B. Nicolardot and J. A. E. Molina

245 C and N fluxes between pools of soil organic matter: model calibration with long-term field experimental data

B. Nicolardot, G. Fauvet and D. Cheneby

253 Carbon and nitrogen cycling through soil microbial biomass at various temperatures

A. R. Harris, D. A. Schisler, S. M. Neate and M. H. Ryder

263 Suppression of damping-off caused by *Rhizoctonia solani*, and growth promotion, in bedding plants by binucleate *Rhizoctonia* spp

Jan Boelens, Marleen Vande Woestyne and Willy Verstraete

269 Ecological importance of motility for the plant growth-promoting *rhizopseudomonas* strain ANP15

D. L. Mumme, J. L. Smith and H. Bolton Jr

279 Nitrous oxide flux from a shrub-steppe ecosystem: sources and regulation

Claire Trouve, André Mariotti, Dominique Schwartz and Bernard Guillet

287 Soil organic carbon dynamics under *Eucalyptus* and *Pinus* planted on savannas in the Congo

Short Communications

Socorro Z. Parco, Michael J. Dilworth and Andrew R. Glenn

297 Motility and the distribution of introduced root nodule bacteria on the root system of legumes

B. Rodelas, V. Salmeron, M. V. Martinez-Toledo and J. Gonzalez-Lopez

301 Production of amino acids by *Azospirillum brasiliense* in chemically-defined medium amended with malate, gluconate or fructose

Forthcoming Papers

I

Volume 26 Number 3

R. F. Grant

305 Simulation of ecological controls on nitrification

Leon X. Liu and Tom Hsiang

317 Bioassays for benomyl adsorption and persistence in soil

Janine E. Hawkins and Christopher Freeman

325 Rising sea levels—potential effects upon terrestrial greenhouse gas production

R. P. Griffiths, J. E. Baham and B. A. Caldwell

331 Soil solution chemistry of ectomycorrhizal mats in forest soil

J. R. Rao, M. Fenton and B. D. W. Jarvis

C. W. Lindau

L. Dendooven, P. Splatt, J. M. Anderson and D. Scholefield

M. J. Delgado, F. Ligero and C. Lluch

M. Briglia, P. J. M. Middeldorp and M. S. Salkinoja-Salonen

J. C. Tarafdar and H. Marschner

Orlando A. Andrade, D. E. Mathre and D. C. Sands

Joy S. Clein and Joshua P. Schimel

Short Communications

P. Benoit, Th. Choné and E. Barriuso

K. Toyota, K. Miyashita and M. Kimura

J. H. van Ginkel, R. Merckx and J. A. van Veen

Letter to the Editor

Ernst Witter, Ken E. Giller and Steve P. McGrath

Forthcoming Papers

339 Symbiotic plasmid transfer in *Rhizobium leguminosarum* biovar *trifolii* and competition between the inoculant strain ICMP2163 and transconjugant soil bacteria

353 Methane emissions from Louisiana rice fields amended with nitrogen fertilizers

361 Kinetics of the denitrification process in a soil under permanent pasture

371 Effects of salt stress on growth and nitrogen fixation by pea, faba-bean, common bean and soybean plants

377 Mineralization performance of *Rhodococcus chlorophenolicus* strain PCP-1 in contaminated soil simulating on site conditions

387 Phosphatase activity in the rhizosphere and hyphosphere of VA mycorrhizal wheat supplied with inorganic and organic phosphorus

397 Suppression of *Gaeumannomyces graminis* var. *tritici* in Montana soils and its transferability between soils

403 Reduction in microbial activity in birch litter due to drying and rewetting events

407 On-line measurement of total C and ^{14}C of ^{14}C -labelled organic matter

413 Introduction of a chitinase gene into *Pseudomonas stutzeri* A18 isolated from the surface of chlamydospores of *Fusarium oxysporum* f. sp. *raphani*

417 Microbial biomass method based on soluble carbon in the soil solution

421 Long-term effects of metal contamination on soil microorganisms

I

Volume 26 Number 4

E. S. P. Bromfield, R. Wheatcroft and L. R. Barran

Jyri Kankila and Kristina Lindström

L. Zelles, Q. Y. Bai, R. X. Ma, R. Rackwitz, K. Winter and F. Beese

John G. Waterer, J. Kevin Vessey, Elmer H. Stobbe and Robert J. Soper

E. S. Jensen

E. S. Jensen

S. P. Deng and M. A. Tabatabai

Katsuji Watanabe, Susumu Asakawa and Koichi Hayano

423 Medium for direct isolation of *Rhizobium meliloti* from soils

429 Host range, morphology and DNA restriction patterns of bacteriophage isolates infecting *Rhizobium leguminosarum* bv. *trifolii*

439 Microbial biomass, metabolic activity and nutritional status determined from fatty acid patterns and poly-hydroxybutyrate in agriculturally-managed soils

447 Yield and symbiotic nitrogen fixation in a pea-mustard intercrop as influenced by N fertilizer addition

455 Dynamics of mature pea residue nitrogen turnover in unplanted soil under field conditions

465 Availability of nitrogen in ^{15}N -labelled mature pea residues to subsequent crops in the field

473 Colorimetric determination of reducing sugars in soils

479 Evaluation of extracellular protease activities of soil bacteria

R. Hameed, J. Cortez et M. B. Bouché	483 Biostimulation de la croissance de <i>Lolium perenne</i> L. par l'azote excréte par <i>Lumbricus terrestris</i> L.—mesure au laboratoire de ce débit
R. Hameed, M. B. Bouché et J. Cortez	495 Etudes <i>in situ</i> des transferts d'azote d'origine lombricienne (<i>Lumbricus terrestris</i> L.) vers les plantes
A. Smolander and E. Mälkönen	503 Microbial biomass C and N in limed soil of Norway spruce stands
Eric Bremer and Peter Kuikman	511 Microbial utilization of $^{14}\text{C}[\text{U}]$ glucose in soil is affected by the amount and timing of glucose additions
<i>Short Communications</i>	
E. S. Jensen	519 Mineralization—immobilization of nitrogen in soil amended with low C:N ratio plant residues with different particle sizes
P. M. Bradley, F. H. Chapelle, M. L. Jagucki and P. B. McMahon	523 Effect of atrazine on potential denitrification in aquifer sediments
Forthcoming Papers	I

Volume 26 Number 5

FRANKIA AND ACTINORHIZAL PLANTS

Warwick Silvester and Sharon Harris	v Preface
Dwight D. Baker and Alison Berry	vii A tribute to John G. Torrey 1921–1993
Kerstin Huss-Danell and David D. Myrold	525 Intrageneric variation in nodulation of <i>Alnus</i> : consequences for quantifying <i>Frankia</i> nodulation units in soil
David D. Myrold and Kerstin Huss-Danell	533 Population dynamics of <i>Alnus</i> -infective <i>Frankia</i> in a forest soil with and without host trees
N. R. McEwan, C. T. Wheeler and J. J. Milner	541 Strain discrimination of cultured and symbiotic <i>Frankia</i> by RFLP-PCR
Dwight D. Baker and Beth C. Mullin	547 Diversity of <i>Frankia</i> nodule endophytes of the actinorhizal shrub <i>Ceanothus</i> as assessed by RFLP patterns from single nodule lobes
Benoit Cournoyer and Philippe Normand	553 Characterization of a spontaneous thiostrepton-resistant <i>Frankia alni</i> infective isolate using PCR-RFLP of <i>nif</i> and <i>g/nII</i> genes
Dallas B. Aronson and Gregory L. Boyer	561 Growth and siderophore formation in six iron-limited strains of <i>Frankia</i>
Shawky Selim and Jaime Schwencke	569 1,2-Dipalmitoyl phosphatidylcholine, 1,2-dipalmitoyl phosphatidic acid or 1,2-dipalmitoyl-sn-glycerol inhibit sporangia formation and promote exponential growth of various <i>Frankia</i> isolates from the Casuarinaceae family
C. T. Wheeler, G. S. Tonin* and A. Sutcliffe	577 Polyamines of <i>Frankia</i> in relation to nitrogen nutrition
Anita Sellstedt and Ulrika Mattsson	583 Hydrogen metabolism in <i>Casuarina</i> — <i>Frankia</i> : immunolocalization of nitrogenase and hydrogenase
S. H. Burleigh and J. O. Dawson	593 Desiccation tolerance and trehalose production in <i>Frankia</i> hyphae
John A. Arnone III, Steven J. Kohls and Dwight D. Baker	599 Nitrate effects on nodulation and nitrogenase activity of actinorhizal <i>Casuarina</i> studied in split-root systems
Wanda K. Crannell, Yasu Tanaka and David D. Myrold	607 Calcium and pH interaction on root nodulation of nursery-grown red alder (<i>Alnus rubra</i> Bong.) seedlings by <i>Frankia</i>
Laura J. Crocker and Christa R. Schwintzer	615 Soil conditions affect the occurrence of cluster roots in <i>Myrica gale</i> L. in the field

Steven J. Kohls, Chris van Kessel, Dwight D. Baker, David F. Grigal and Donald B. Lawrence 623 Assessment of N₂ fixation and N cycling by *Dryas* along a chronosequence within the forelands of the Athabasca Glacier, Canada

Shengyou Zeng and John D. Tjepkema 633 The wall of the infected cell may be the major diffusion barrier in nodules of *Myrica gale* L.

Sharon Harris and Warwick Silvester 641 Acetylene- and argon-induced declines in nitrogenase activity in *Coriaria arborea*

Anne-Marie Domenach, André Moiroud and Lucile Jocteur-Monrozier 649 Leaf carbon and nitrogen constituents of some actinorhizal tree species

Samira R. Mansour and Dwight D. Baker 655 Selection trials for effective N₂-fixing *Casuarina-Frankia* combinations in Egypt

Short Communication

Erica Lumini, Marco Bosco, Gigliola Puppi, Raffaella Isopi, Mauro Frattegiani, Enrico Buresti and Franco Favilli 659 Field performance of *Alnus cordata* Loisel (Italian alder) inoculated with *Frankia* and VA-mycorrhizal strains in mine-spoil afforestation plots

Forthcoming Papers

I

Volume 26 Number 6

Accelerated Paper

H. Tapp, L. Calamai and G. Stotzky 663 Adsorption and binding of the insecticidal proteins from *Bacillus thuringiensis* subsp. *kurstaki* and subsp. *tenebrionis* on clay minerals

General Papers

Gamini Seneviratne, S. A. Kulasoorya and Thomas Rosswall 681 Sustainment of soil fertility in the traditional rice farming, dry zone, Sri Lanka

Miriam Freund, Oded Yarden, Rina Varsano and Baruch Rubin 689 Reduced fluridone efficacy in soil: a possible case for reversible microbial inactivation

Hema Singh and K. P. Singh 695 Nitrogen and phosphorus availability and mineralization in dryland reduced tillage cultivation: effects of residue placement and chemical fertilizer

Fiona G. Rynne, Andrew R. Glenn and Michael J. Dilworth 703 Effect of mutations in aromatic catabolism on the persistence and competitiveness of *Rhizobium leguminosarum* bv. *trifolii*

B. Frey, A. Vilariño, H. Schüepp and J. Arines 711 Chitin and ergosterol content of extraradical and intraradical mycelium of the vesicular-arbuscular mycorrhizal fungus *Glomus intraradices*

L. D. J. Penrose and S. M. Neate 719 Resistance to *Gaeumannomyces graminis* in wheat genotypes grown in field environments and sand culture

R. D. Bardgett and S. Saggar 727 Effects of heavy metal contamination on the short-term decomposition of labelled [¹⁴C]glucose in a pasture soil

Kenji Tatsumi, Alan Freyer, Robert D. Minard and Jean-Marc Bollag 735 Enzymatic coupling of chloroanilines with syringic acid, vanillic acid and protocatechuic acid

S. P. Trehan 743 Immobilization of ¹⁵NH₄ by cattle slurry decomposing in soil

Audrey Meikle, L. Anne Glover, Kenneth Killham and James I. Prosser 747 Potential luminescence as an indicator of activation of genetically-modified *Pseudomonas fluorescens* in liquid culture and in soil

Chris van Kessel, Richard E. Farrell, Joann P. Roskoski and Kevin M. Keane 757 Recycling of the naturally-occurring ¹⁵N in an established stand of *Leucaena leucocephala*

Marianne Johansson	763 Quantification of mycorrhizal infection in roots of <i>Calluna vulgaris</i> (L.) Hull from Danish heathland
Alan A. Keeling, Ian K. Paton and John A. J. Mullett	767 Germination and growth of plants in media containing unstable refuse-derived compost
Alan A. Keeling, John A. J. Mullett and Ian K. Paton	773 GC-mass spectrometry of refuse-derived composts
L. Gianfreda, F. Sannino, N. Ortega and P. Nannipieri	777 Activity of free and immobilized urease in soil: effects of pesticides
Juan M. Caba, Carmen Lluch and Francisco Ligero	785 Genotypic variability of nitrogen metabolism enzymes in nodulated roots of <i>Vicia faba</i>
Marcela Zamudio and Fernando Bastarrachea	791 Adhesiveness and root hair deformation capacity of <i>Azospirillum</i> strains for wheat seedlings
<i>Short Communications</i>	
L. A. Schipper, A. B. Cooper, C. G. Harfoot and W. J. Dyck	799 An inverse relationship between nitrate and ammonium in an organic riparian soil
Patrick Mavingui and Thierry Heulin	801 <i>In vitro</i> chitinase and antifungal activity of a soil, rhizosphere and rhizoplane population of <i>Bacillus polymyxa</i>
Forthcoming Papers	I

Volume 26 Number 7

Kamtin Leung and Peter J. Bottomley	805 Growth and nodulation characteristics of subclover (<i>Trifolium subterraneum</i> L.) and <i>Rhizobium leguminosarum</i> bv. <i>trifolii</i> at different soil water potentials
Samir Pal, Jean-Marc Bollag and P. M. Huang	813 Role of abiotic and biotic catalysts in the transformation of phenolic compounds through oxidative coupling reactions
J. N. Ladd, M. Amato, Zhou Li-kai and J. E. Schultz	821 Differential effects of rotation, plant residue and nitrogen fertilizer on microbial biomass and organic matter in an Australian Alfisol
H. J. van Praag, G. Lognay, G. Carletti, F. Weissen and M. Severin	833 Temporal and spatial variations of root tip density and ergosterol content of mycorrhizal roots of <i>Picea abies</i> Karst. and <i>Fagus sylvatica</i> L.
Peter Borga, Mats Nilsson and Anders Tunlid	841 Bacterial communities in peat in relation to botanical composition as revealed by phospholipid fatty acid analysis
Jane L. Mawdsley and Richard G. Burns	849 Factors affecting the survival of a <i>Flavobacterium</i> species in non-planted and rhizosphere soil
Jane L. Mawdsley and Richard G. Burns	861 Root colonization by a <i>Flavobacterium</i> species and the influence of percolating water
Jane L. Mawdsley and Richard G. Burns	871 Inoculation of plants with a <i>Flavobacterium</i> species results in altered rhizosphere enzyme activities
D. S. Daramola, S. K. A. Danso and G. Hardarson	883 Nodulation, N ₂ fixation and dry matter yield of soybean [<i>Glycine max</i> (L.) Merrill] inoculated with effective and ineffective <i>Bradyrhizobium japonicum</i> strains
Gero Benckiser	891 Relationships between field-measured denitrification losses, CO ₂ formation and diffusional constraints
D. J. McKenney, C. F. Drury, W. I. Findlay, B. Mutus, T. McDonnell and C. Gajda	901 Kinetics of denitrification by <i>Pseudomonas fluorescens</i> : oxygen effects
C. R. Thornton, F. M. Dewey and C. A. Gilligan	909 Development of a monoclonal antibody-based enzyme-linked immunosorbent assay for the detection of live propagules of <i>Trichoderma harzianum</i> in a peat-bran medium

M. Fulchieri and L. Frioni	921 <i>Azospirillum</i> inoculation on maize (<i>Zea mays</i>): effect on yield in a field experiment in Central Argentina
<i>Short Communication</i>	
L. Dendooven, P. Splatt and J. M. Anderson	925 The use of chloramphenicol in the study of the denitrification process: some side-effects
Forthcoming Papers	I

Volume 26 Number 8

S. Khalil and T. E. Loynachan	929 Soil drainage and distribution of VAM fungi in two toposequences
P. P. Motavalli, C. A. Palm, W. J. Parton, E. T. Elliott and S. D. Frey	935 Comparison of laboratory and modeling simulation methods for estimating soil carbon pools in tropical forest soils
D. Andrivon	945 Dynamics of the survival and infectivity to potato tubers of sporangia of <i>Phytophthora infestans</i> in three different soils
D. Andrivon	953 Fate of <i>Phytophthora infestans</i> in a suppressive soil in relation to pH
A. Smolander, A. Kurka, V. Kitunen and E. Mälkönen	957 Microbial biomass C and N, and respiratory activity in soil of repeatedly limed and N- and P-fertilized Norway spruce stands
Karl Ritz and Bryan S. Griffiths	963 Potential application of a community hybridization technique for assessing changes in the population structure of soil microbial communities
N. Y. O. Muyima, A. J. Reinecke and S. A. Viljoen-Reinecke	973 Moisture requirements of <i>Dendrobaena veneta</i> (Oligochaeta), a candidate for vermicomposting
Ulrike Krauss and J. W. Deacon	977 Water-facilitated transport of a pimaricin-resistant strain of <i>Mucor hiemalis</i> in the rhizosphere of groundnut (<i>Arachis hypogaea</i> L.) in a Malawian ferric luvisol
Rainer Georg Joergensen, Brunk Meyer and Torsten Mueller	987 Time-course of the soil microbial biomass under wheat: a 1 yr field study
E. Bååth and K. Arnebrant	995 Growth rate and response of bacterial communities to pH in limed and ash treated forest soils
Sten Struwe and Annelise Kjøller	1003 Potential for N_2O production from beech (<i>Fagus sylvatica</i>) forest soils with varying pH
A. Gorissen, N. N. Joosten and S. L. G. E. Burgers	1011 Ammonium deposition and the mycoflora in the rhizosphere of Douglas-fir
A. Walter, V. Römhild, H. Marschner and D. E. Crowley	1023 Iron nutrition of cucumber and maize: effect of <i>Pseudomonas putida</i> YC 3 and its siderophore
R. E. Farrell, V. V. S. R. Gupta and J. J. Germida	1033 Effects of cultivation on the activity and kinetics of arylsulfatase in Saskatchewan soils
C. Abbès, L. E. Parent and A. Karam	1041 Nitrification of ammoniated peat and ammonium sulfate in mineral soils
Clare H. Robinson, J. Dighton, Juliet C. Frankland and J. D. Roberts	1053 Fungal communities on decaying wheat straw of different resource qualities
Luo Qui-xiang, J. R. Freney, D. G. Keerthisinghe and M. B. Peoples	1059 Inhibition of urease activity in flooded soils by phenylphosphorodiamidate and N-(n-butyl)thiophosphorictriamide
G. R. Cline and Z. Ngewoh Senwo	1067 Tolerance of <i>lespedeza</i> <i>Bradyrhizobium</i> to acidity, aluminum, and manganese in culture media containing glutamate or ammonium
J. Baar, W. A. Ozinga, I. L. Sweers and Th. W. Kuyper	1073 Stimulatory and inhibitory effects of needle litter and grass extracts on the growth of some ectomycorrhizal fungi

A.-L. E. Mahmoud and M. H. Abd-Alla	1081 Natural occurrence of mycotoxins in broad bean (<i>Vicia faba</i> L.) seeds and their effect on <i>Rhizobium</i> -legume symbiosis
Margaret M. Roper, Jillanne E. Turpin and John P. Thompson	1087 Nitrogenase activity (C_2H_2 reduction) by free-living bacteria in soil in a long-term tillage and stubble management experiment on a vertisol
<i>Short Communications</i>	
H. Christensen and L. K. Poulsen	1093 Detection of <i>Pseudomonas</i> in soil by rRNA targeted <i>in situ</i> hybridization
D. Erceg, P. O'Brien, T. L. Bulman and A. R. Glenn	1097 Survival and movement of a recombinant strain of <i>Rhizobium leguminosarum</i> biovar <i>trifolii</i> in intact soil core microcosms
<i>Letters to the Editor</i>	
I. L. Pepper, J. W. Brendecke and R. D. Axelson	1099 Metal contamination on soil microorganisms
Ernst Witter, Ken E. Giller and Steve P. McGrath	1100 Response
Forthcoming Papers	I

Volume 26 Number 9

<i>Accelerated Papers</i>	
John C. Zak, Michael R. Willig, Daryl L. Moorhead and Howard G. Wildman	1101 Functional diversity of microbial communities: a quantitative approach
M. Amato and J. N. Ladd	1109 Application of the ninhydrin-reactive N assay for microbial biomass in acid soils
<i>General Papers</i>	
Barbara Burkert and Alan Robson	1117 ^{65}Zn uptake in subterranean clover (<i>Trifolium subterraneum</i> L.) by three vesicular-arbuscular mycorrhizal fungi in a root-free sandy soil
P. Mary, N. Dupuy, C. Dolhem-Biremon, C. Defives and R. Tailliez	1125 Differences among <i>Rhizobium meliloti</i> and <i>Bradyrhizobium japonicum</i> strains in tolerance to desiccation and storage at different relative humidities
J. P. Thompson	1133 Inoculation with vesicular-arbuscular mycorrhizal fungi from cropped soil overcomes long-fallow disorder of linseed (<i>Linum usitatissimum</i> L.) by improving P and Zn uptake
Chandrika Varadachari, Aijul Haque Mondal, Dulal C. Nayak and Kunal Ghosh	1145 Clay-humus complexation: effect of pH and the nature of bonding
Jeffrey L. Smith, Jonathan J. Halvorson and Harvey Bolton Jr	1151 Spatial relationships of soil microbial biomass and C and N mineralization in a semi-arid shrub-steppe ecosystem
C. B. Christianson and R. G. Howard	1161 Use of soil thin-layer chromatography to assess the mobility of the phosphoric triamide urease inhibitors and urea in soil
C. J. Watson, H. Miller, P. Poland, D. J. Kilpatrick, M. D. B. Allen, M. K. Garrett and C. B. Christianson	1165 Soil properties and the ability of the urease inhibitor <i>N</i> -(n-butyl) thiophosphoric triamide (nBTPT) to reduce ammonia volatilization from surface-applied urea
I. M. Young, A. Roberts, B. S. Griffiths and S. Caul	1173 Growth of a ciliate protozoan in model ballotini systems of different particle sizes
G. P. Sparling, S. Anne Brandenburg and Chunya Zhu	1179 Microbial C and N in revegetated wheatbelt soils in Western Australia: estimation in soil, humus and leaf-litter using the ninhydrin method
C. García, T. Hernández and F. Costa	1185 Microbial activity in soils under Mediterranean environmental conditions

J. F. Darbyshire, M. S. Davidson, S. J. Chapman and S. Ritchie	1193 Excretion of nitrogen and phosphorus by the soil ciliate <i>Colpoda steinii</i> when fed the soil bacterium <i>Arthrobacter</i> sp.
A. Fließbach, R. Martens and H. H. Reber	1201 Soil microbial biomass and microbial activity in soils treated with heavy metal contaminated sewage sludge
Thomas Hintze, Peter Gehlen and Dietmar Schröder	1207 Are microbial biomass estimations equally valid with arable soils and forest soils?
E. A. Stockdale and R. M. Rees	1213 Relationships between biomass nitrogen and nitrogen extracted by other nitrogen availability methods
J. Hassink	1221 Effects of soil texture and grassland management on soil organic C and N and rates of C and N mineralization
Timothy B. Parkin and Edwin C. Berry	1233 Nitrogen transformations associated with earthworm casts
P. J. Ann	1239 Survey of soils suppressive to three species of <i>Phytophthora</i> in Taiwan
A. R. Harris, D. A. Schisler, R. L. Correll and M. H. Ryder	1249 Soil bacteria selected for suppression of <i>Rhizoctonia solani</i> , and growth promotion, in bedding plants
A. Zsolnay and H. Görlitz	1257 Water extractable organic matter in arable soils: effects of drought and long-term fertilization
S. Saggar, K. R. Tate, C. W. Feltham, C. W. Childs and A. Parshotam	1263 Carbon turnover in a range of allophanic soils amended with ¹⁴ C-labelled glucose
T. Nishio	1273 Estimating nitrogen transformation rates in surface aerobic soil of a paddy field
<i>Short Communications</i>	
H. Kirchmann and M. Eklund	1281 Microbial biomass in a savanna-woodland and an adjacent arable soil profile in Zimbabwe
P. M. Stephens, C. W. Davoren, M. H. Ryder and B. M. Doube	1285 Influence of the earthworms <i>Aporrectodea rosea</i> and <i>Aporrectodea trapezoides</i> on <i>Rhizoctonia solani</i> disease of wheat seedlings and the interaction with a surface mulch of cereal-pea straw
Erratum	1289
Forthcoming Papers	1290

Volume 26 Number 10

<i>Accelerated Paper</i>	
P. M. Stephens, C. W. Davoren, B. M. Doube and M. H. Ryder	1291 Ability of the lumbricid earthworms <i>Aporrectodea rosea</i> and <i>Aporrectodea trapezoides</i> to reduce the severity of take-all under greenhouse and field conditions
<i>General Papers</i>	
H.-W. Olf and W. Werner	1299 Characterization of soil nitrogen and nitrogen uptake by grass following a two-year fallow of potted soils receiving mineral and organic sources of nitrogen
R. L. Sinsabaugh and D. L. Moorhead	1305 Resource allocation to extracellular enzyme production: a model for nitrogen and phosphorus control of litter decomposition
Erick Zagal and Jan Persson	1313 Immobilization and remineralization of nitrate during glucose decomposition at four rates of nitrogen addition
B. J. R. Alexander and A. Stewart	1323 Survival of sclerotia of <i>Sclerotinia</i> and <i>Sclerotium</i> spp in New Zealand horticultural soil
P. M. Crill, P. J. Martikainen, H. Nykänen and J. Silvola	1331 Temperature and N fertilization effects on methane oxidation in a drained peatland soil
S. Nardi, M. R. Panuccio, M. R. Abenavoli and A. Muscolo	1341 Auxin-like effect of humic substances extracted from faeces of <i>Allolobophora caliginosa</i> and <i>A. rosea</i>

S. P. Deng and M. A. Tabatabai	1347	Cellulase activity of soils
M. P. You and K. Sivasithamparam	1355	Hydrolysis of fluorescein diacetate in an avocado plantation mulch suppressive to <i>Phytophthora cinnamomi</i> and its relationship with certain biotic and abiotic factors
C. B. McAllister, I. García-Romera, A. Godeas and J. A. Ocampo	1363	Interactions between <i>Trichoderma koningii</i> , <i>Fusarium solani</i> and <i>Glomus mosseae</i> : effects on plant growth, arbuscular mycorrhizas and the saprophyte inoculants
C. B. McAllister, I. García-Romera, A. Godeas and J. A. Ocampo	1369	<i>In vitro</i> interactions between <i>Trichoderma koningii</i> , <i>Fusarium solani</i> and <i>Glomus mosseae</i>
E. Parlanti, C. Hita, P. Jambu, H. Dinel and A. Amblès	1375	The internal double-bond insertion: a side reaction of aliphatic hydrocarbons degradation in soil
K. Franzluebbers, R. W. Weaver, A. S. R. Juo and A. J. Franzluebbers	1379	Carbon and nitrogen mineralization from cowpea plant parts decomposing in moist and in repeatedly dried and wetted soil
H. Siepel and F. Maaskamp	1389	Mites of different feeding guilds affect decomposition of organic matter
R. A. Drijber and W. B. McGill	1395	Sulfonolipids as a biomarker to monitor the population dynamics of the genera <i>Cytophaga</i> and <i>Flexibacter</i> in soil worked by the earthworm <i>Aporrectodea turgida</i>
Shlomo Sarig and Yosef Steinberger	1405	Microbial biomass response to seasonal fluctuation in soil salinity under the canopy of desert halophytes
Antonio Gallardo and William H. Schlesinger	1409	Factors limiting microbial biomass in the mineral soil and forest floor of a warm-temperate forest
V. N. Pandey and N. K. Dubey	1417	Antifungal potential of leaves and essential oils from higher plants against soil phytopathogens
L.-M. Dandurand, M. J. Morra, M. H. Chaverra and C. S. Orser	1423	Survival of <i>Pseudomonas</i> spp in air-dried mineral powders
A. R. Harris, D. A. Schisler, M. H. Ryder and P. G. Adkins	1431	Bacteria suppress damping-off caused by <i>Pythium ultimum</i> var. <i>sporangiferum</i> , and promote growth, in bedding plants
<i>Short Communications</i>		
C. Freeman, J. Hudson, M. A. Lock, B. Reynolds and C. Swanson	1439	A possible role of sulphate in the suppression of wetland methane fluxes following drought
L. J. Sikora, V. Yakovchenko and D. D. Kaufman	1443	Comparison of the rehydration method for biomass determination to fumigation-incubation and substrate-induced respiration method
A. M. Jackson and A. S. Ball	1447	Importance of isolation media on the isolation frequency of <i>Thermoactinomyces</i> species
Eric A. Davidson and Joseph L. Hackler	1449	Soil heterogeneity can mask the effects of ammonium availability on nitrification
Sigrun Dahlin	1455	Importance of water-soluble C in filter paper on the determination of microbial C by the fumigation-extraction method
Book Review	1457	
Forthcoming Papers	I	

Volume 26 Number 11

Richard D. Boone	1459	Light-fraction soil organic matter: origin and contribution to net nitrogen mineralization
A. J. Franzluebbers, F. M. Hons and D. A. Zuberer	1469	Seasonal changes in soil microbial biomass and mineralizable C and N in wheat management systems

J. C. Octive, A. C. Johnson and M. Wood	1477 Effects of previous aluminium exposure on motility and nodulation by <i>Rhizobium</i> and <i>Bradyrhizobium</i>
Ida Thingstrup and Søren Rosendahl	1483 Quantification of fungal activity in arbuscular mycorrhizal symbiosis by polyacrylamide gel electrophoresis and densitometry of malate dehydrogenase
Gamini Seneviratne, Jayantha Karunaratne, S. A. Kulsooriya and Thomas Rosswall	1491 Theory to predict potentially mineralizable nitrogen in soils
P. M. Stephens, C. W. Davoren, M. H. Ryder, B. M. Doube and R. L. Correll	1495 Field evidence for reduced severity of <i>Rhizoctonia</i> bare-patch disease of wheat, due to the presence of the earthworms <i>Aporrectodea rosea</i> and <i>Aporrectodea trapezoides</i>
L. Dendooven and J. M. Anderson	1501 Dynamics of reduction enzymes involved in the denitrification process in pasture soil
A. G. O'Donnell, J. Wu and J. K. Syers	1507 Sulphate-S amendments in soil and their effects on the transformation of soil sulphur
Stefan Scheu and Dennis Parkinson	1515 Changes in bacterial and fungal biomass C, bacterial and fungal biovolume and ergosterol content after drying, remoistening and incubation of different layers of cool temperate forest soils
D. G. Keerthisinghe and J. R. Freney	1527 Inhibition of urease activity in flooded soils: effect of thiophosphorictriamides and phosphorictriamides
B. K. Robertson and Martin Alexander	1535 Mode of dispersal of the stem-nodulating bacterium, <i>Azorhizobium</i>
A. Ikram, E. S. Jensen and I. Jakobsen	1541 No significant transfer of N and P from <i>Pueraria phaseoloides</i> to <i>Hevea brasiliensis</i> via hyphal links of arbuscular mycorrhiza
P. N. Nelson, M-C. Dictor and G. Soulas	1549 Availability of organic carbon in soluble and particle-size fractions from a soil profile
J. L. M. Gonçalves and J. C. Carlyle	1557 Modelling the influence of moisture and temperature on net nitrogen mineralization in a forested sandy soil
J. Hassink, A. M. Neutel and P. C. De Ruiter	1565 C and N mineralization in sandy and loamy grassland soils: the role of microbes and microfauna
J. Hassink	1573 Effect of soil texture on the size of the microbial biomass and on the amount of C and N mineralized per unit of microbial biomass in Dutch grassland soils
<i>Short Communications</i>	
M. C. Ryan and R. Aravena	1583 Combining ^{13}C natural abundance and fumigation-extraction methods to investigate soil microbial biomass turnover
S. Khalil, L. Carpenter-Boggs and T. E. Loynachan	1587 Procedure for rapid recovery of VAM fungal spores from soil
Corrigendum	1589
Forthcoming Papers	1590

Volume 26 Number 12

<i>Review</i>	
Yaacov Okon and Carlos A. Labandera-Gonzalez	1591 Agronomic applications of <i>Azospirillum</i> : an evaluation of 20 years worldwide field inoculation
<i>Accelerated Papers</i>	
Richard T. Lamar, Mark W. Davis, Diane M. Dietrich and John A. Glaser	1603 Treatment of a pentachlorophenol- and creosote-contaminated soil using the lignin-degrading fungus <i>Phanerochaete sordida</i> : a field demonstration

Birgit W. Hütsch, Colin P. Webster and David S. Powis	1613	Methane oxidation in soil as affected by land use, soil pH and N fertilization
<i>General Papers</i>		
D. W. Hopkins, B. L. Isabella and S. E. Scott	1623	Relationship between microbial biomass and substrate induced respiration in soils amended with D- and L-isomers of amino acids
S. C. Jarvis and D. J. Hatch	1629	Potential for denitrification at depth below long-term grass swards
David F. Bezdicek, Mark A. Quinn, Lisa Forse, David Heron and Michael L. Kahn	1637	Insecticidal activity and competitiveness of <i>Rhizobium</i> spp containing the <i>Bacillus thuringiensis</i> subsp. <i>tenebrionis</i> δ -endotoxin gene (<i>cryIII</i>) in legume nodules
V. O. Biederbeck, H. H. Janzen, C. A. Campbell and R. P. Zentner	1647	Labile soil organic matter as influenced by cropping practices in an arid environment
J. G. Dubrovsky, M. Esther Puente and Y. Bashan	1657	<i>Arabidopsis thaliana</i> as a model system for the study of the effect of inoculation by <i>Azospirillum brasiliense</i> Sp-245 on root hair growth
W. J. Hickey, D. J. Fuster and R. T. Lamar	1665	Transformation of atrazine in soil by <i>Phanerochaete chrysosporium</i>
W. Völkel, Th. Choné, F. Andreux, M. Mansour and F. Korte	1673	Influence of temperature on the degradation and formation of bound residues of 3,4-dichloroaniline in soil
B. J. Duijff, W. J. de Kogel, P. A. H. M. Bakker and B. Schippers	1681	Influence of pseudobactin 358 on the iron nutrition of barley
Sung Ok Han and Peter B. New	1689	Effect of water availability on degradation of 2,4-dichlorophenoxy-acetic acid (2,4-D) by soil microorganisms
A. Roldán, F. García-Orenes and A. Lax	1699	An incubation experiment to determine factors involving aggregation changes in an arid soil receiving urban refuse
<i>Short Communication</i>		
Ousman Diagne and Dwight D. Baker	1709	Quantification of symbiotic N fixation by <i>Prosopis juliflora</i> (Swartz) D.C. using ^{15}N -isotope dilution methodology
Forthcoming Papers		I

**Reproduced with the permission of Pergamon Press Inc., by University
Microfilms Inc. Duplication or resale without permission is prohibited.**

